

What actually reduces a carbon footprint?

Questions to consider

1. Would it be better for commuters to catch the bus to work, or to go by car?
2. Is it better to buy locally produced goods or goods imported from overseas?
3. Is it better to go on vacation by boat, train and car or by plane?

Suggested approach

You can make sensible comparisons by working out the mass of carbon needed to complete each activity.

Available Data: Feel free to find more if you need it.

- 1 gallon of gasoline produces 8.87kg of CO₂
- A round trip, economy class, from London to New York produces 760.22kg of CO₂ per person
- Efficiency of a car ranges from about 25 miles per gallon to 50 miles per gallon
- An efficient small car produces about 120g per km of CO₂
- An efficient large car produces about 140g per km of CO₂
- An efficient empty delivery truck produces about 220 g per km of CO₂
- Locally produced food travels an average of about 200 miles from farm to shop
- Environmental CO₂ output from shipping is twice as much as airlines
- The distance from London to New York is about 2000 miles.
- An empty bus emits seven times more CO₂ per km than an empty car
- Short haul air freight emissions are 1580 g CO₂ per ton kilometer
- Long haul air freight emissions are 570 g CO₂ per ton kilometer
- Freight in a medium truck produces 85 g CO₂ per ton kilometer
- Freight in a large transport ship produces 10 g CO₂ per ton kilometer.
- An average man weighs about 80 or 90 kg
- Bus journeys can take longer than car journeys
- On average, rail journeys produce 0.0602 kg of CO₂ per passenger km
- On average, bus journeys produce 0.0891 kg of CO₂ per passenger km
- Journeys in slow moving traffic can dramatically reduce fuel efficiency.
- Buses, taking into account stops, use an average of 39 litres of fuel per 100km

Thanks to nRich for the questions and data.